

Data sheet

# Servo-operated 2/2-way solenoid valves

## Type EV220A

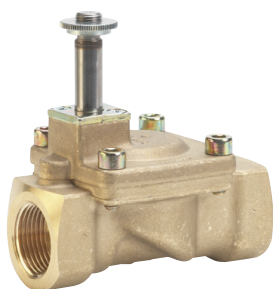


EV220A is a compact servo-operated 2/2-way solenoid valve program, especially designed for use in machines and equipment with limited space.

### Features and versions

- For water, oil, compressed air and similar neutral media
- Differential pressure: From 0.2 – 16 bar
- Media temperatures: From -30 – 100 °C
- Ambient temperatures: Up to 50 °C
- Enclosure: Up to IP65
- DN 6 – 50
- Viscosity: Up to 50 cSt
- Low power consumption
- Liquid hammer damped
- NO version, standard for ¼" – 1" valve sizes
- NC version, standard for ¼" – 2" valve sizes

Brass valve body, NC

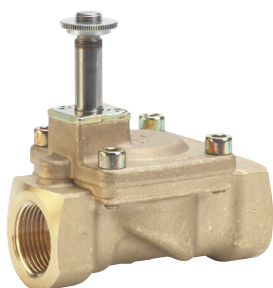


Connection ISO 228/1	Seal material	Orifice size	K <sub>v</sub> -Value [m <sup>3</sup> /h]	Differential pressure, min. to max. [bar] coil type AM	Media temperature min. to max. [°C]	Code number
G 1/4	EPDM <sup>1)</sup>	6	1	0.2 – 16	-30 – 100	<b>042U4001</b>
	NBR			0.2 – 16	-10 – 90	<b>042U4003</b>
	FKM <sup>2)</sup>			0.2 – 16	0 – 100	<b>042U4005</b>
G 3/8	EPDM <sup>1)</sup>	6	1	0.2 – 16	-30 – 100	<b>042U4002</b>
	NBR			0.2 – 16	-10 – 90	<b>042U4004</b>
G 3/8	EPDM <sup>1)</sup>	10	1.6	0.2 – 16	-30 – 100	<b>042U4011</b>
	NBR			0.2 – 16	-10 – 90	<b>042U4013</b>
	FKM <sup>2)</sup>			0.2 – 16	0 – 100	<b>042U4015</b>
G 1/2	EPDM <sup>1)</sup>	10	1.6	0.2 – 16	-30 – 100	<b>042U4012</b>
	NBR			0.2 – 16	-10 – 90	<b>042U4014</b>
	FKM <sup>2)</sup>			0.2 – 16	0 – 100	<b>042U4016</b>
G 1/2	EPDM <sup>1)</sup>	12	2.5	0.3 – 16	-30 – 100	<b>042U4021</b>
	NBR			0.3 – 16	-10 – 90	<b>042U4023</b>
	FKM <sup>2)</sup>			0.3 – 10	0 – 100	<b>042U4025</b>
G 1/2	EPDM <sup>1)</sup>	14	4	0.3 – 16	-30 – 100	<b>042U4022</b>
	NBR			0.3 – 16	-10 – 90	<b>042U4024</b>
	FKM <sup>2)</sup>			0.3 – 10	0 – 100	<b>042U4026</b>
G 3/4	EPDM <sup>1)</sup>	18	7	0.3 – 16	-30 – 100	<b>042U4031</b>
	NBR			0.3 – 16	-10 – 90	<b>042U4032</b>
	FKM <sup>2)</sup>			0.3 – 10	0 – 100	<b>042U4033</b>
G1	EPDM <sup>1)</sup>	22	7	0.3 – 16	-30 – 100	<b>042U4041</b>
	NBR			0.3 – 16	-10 – 90	<b>042U4042</b>
	FKM <sup>2)</sup>			0.3 – 10	0 – 100	<b>042U4043</b>
G 1 1/4	EPDM	32	15	0.3 – 16	-30 – 100	<b>042U4085</b>
	NBR			0.3 – 16	-10 – 90	<b>042U4084</b>
	FKM			0.3 – 10	0 – 100	<b>042U4095</b>
G 1 1/2	EPDM	40	18	0.3 – 16	-30 – 100	<b>042U4087</b>
	NBR			0.3 – 16	-10 – 90	<b>042U4086</b>
	FKM			0.3 – 10	0 – 100	<b>042U4096</b>
G 2	EPDM	50	32	0.3 – 16	-30 – 100	<b>042U4089</b>
	NBR			0.3 – 16	-10 – 90	<b>042U4088</b>
	FKM			0.3 – 10	0 – 100	<b>042U4097</b>

<sup>1)</sup> EPDM is recommended for water.

<sup>2)</sup> FKM is recommended for oil and air. For water at max. 60 °C.

Brass valve body, NO



Connection ISO 228/1	Seal material	Orifice size	K <sub>v</sub> -Value [m <sup>3</sup> /h]	Differential pressure, min. to max. [bar] coil type AM	Media temperature min. to max. [°C]	Code number
G 1/4	NBR <sup>1)</sup>	6	1	0.2 – 16	-10 – 90	<b>042U4053</b>
G 1/2		10	1.6	0.2 – 16		<b>042U4064</b>
G 1/2		12	2.5	0.3 – 16		<b>042U4073</b>
G 1/2		14	4	0.3 – 16		<b>042U4074</b>
G 3/4		18	7	0.3 – 16		<b>042U4082</b>
G 1		22	7	0.3 – 16		<b>042U4092</b>

<sup>1)</sup> NBR is recommended for oil and air.

Technical data, NC and NO

Type	EV220A 6B	EV220A 10B	EV220A 12B	EV220A 14B	EV220A 18B	EV220A 22B	EV220A 32B	EV220A 40B	EV220A 50B
Time to open [ms] <sup>1)</sup>	40	50	60	100	200	200	2500	4000	5000
Time to close [ms] <sup>1)</sup>	250	300	300	400	500	500	4000	6000	10000
Capacity, $k_v$ [m <sup>3</sup> /h]	1	1.6	2.5	4	7	7	15	18	32
Max.test pressure	50 bar		25 bar						

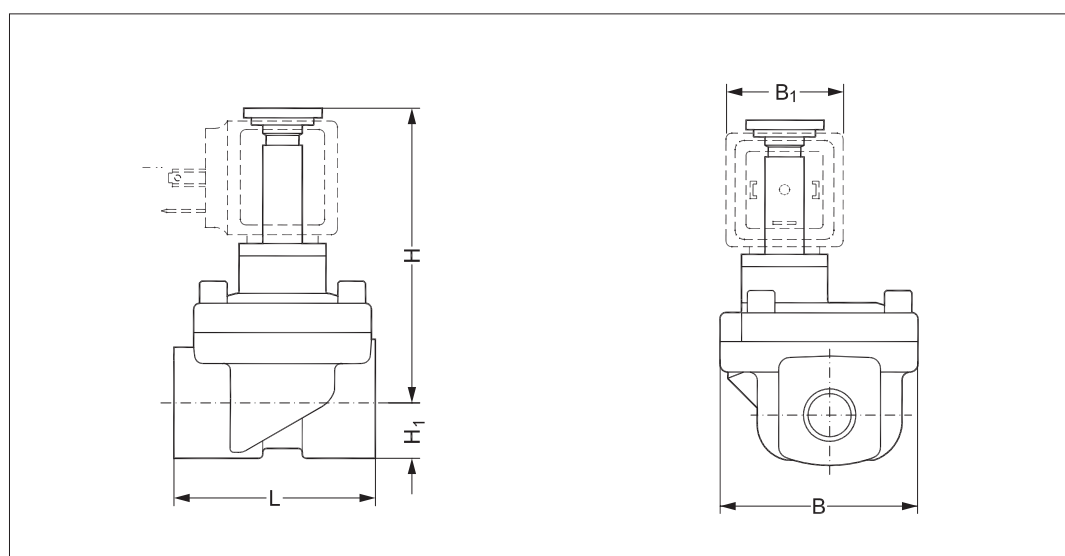
<sup>1)</sup> Times are indicative and apply to water. Exact times will depend on pressure conditions.

Ambient temperature	Max. 50 °C		
Media viscosity	Max. 50 cSt		
Materials	Valve body	Brass	W. no. 2.0401
	Armature	Stainless steel	W. no. 1.4105 / AISI 430FR
	Armature stop	Stainless steel	W. no. 1.4105 / AISI 430FR
	Armature tube	Stainless steel	W. no. 1.4303 / AISI 305
	Spring	Stainless steel	W. no. 14310 / AISI 301
	O-ring	NBR, EPDM or FKM	
	Valve plate	NBR, EPDM or FKM For NO: NBR	
	Diaphragm	NBR, EPDM or FKM	

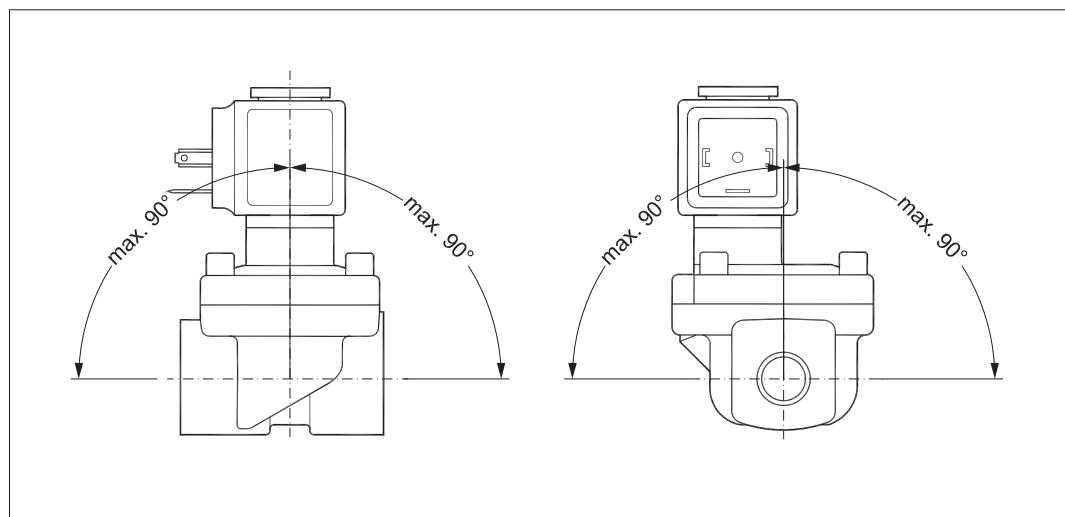
Dimensions and weight

Type	Weight gross Valve body without coil [kg]	L [mm]	B [mm]	B <sub>1</sub> [mm]	H <sub>1</sub> [mm]	H [mm]	
				Coil AM		NC	NO
EV220A 6B	0.46	51	50	33	13	76	80
EV220A 10B	0.44	51	50	33	13	76	80
EV220A 12B	0.52	58	58	33	13	77	81
EV220A 14B	0.50	58	58	33	13	77	81
EV220A 18B	0.72	90	58	33	18	78	82
EV220A 22B	1	90	58	33	22	83	87
EV220A 32B	2	120	82	33	27	95	-
EV220A 40B	3.2	130	95	33	32	105	-
EV220A 50B	4.3	162	113	33	37	111	-


Dimensions



Mounting angle

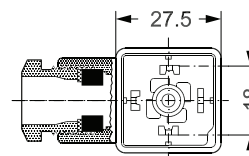
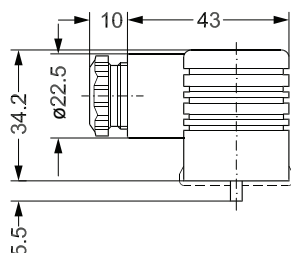


Below coil can be used with EV220A:

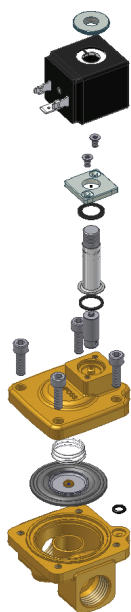
Coil	Type	Power consumption	Enclosure
	AM	7.5 W a.c. 9.5 W d.c.	IP00 with spade connector, IP65 with cable plug

**Accessories:**  
**Cable plug**

Application	Code number
GDM 2011 (grey) cable plug according to DIN 43650-A PG11	<b>042N0156</b>



**Spare parts kit, NC version**



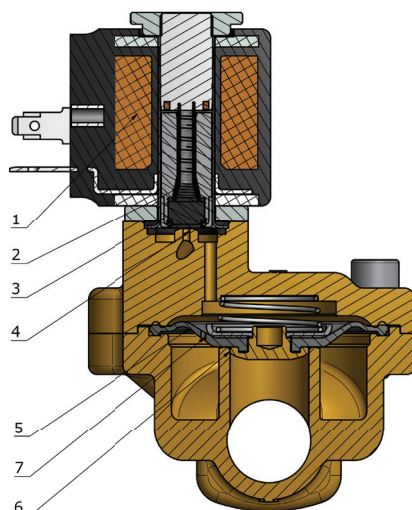
Type	Seal material	Code number
EV220A 6 - EV220A 10B	EPDM	<b>042U1000</b>
EV220A 6 - EV220A 10B	NBR	<b>042U1001</b>
EV220A 6 - EV220A 10B	FKM	<b>042U1002</b>
EV220A 12 - EV220A 14B	EPDM	<b>042U1003</b>
EV220A 12 - EV220A 14B	NBR	<b>042U1004</b>
EV220A 12 - EV220A 14B	FKM	<b>042U1005</b>
EV220A 18 - EV220A 22B	EPDM	<b>042U1006</b>
EV220A 18 - EV220A 22B	NBR	<b>042U1007</b>
EV220A 18 - EV220A 22B	FKM	<b>042U1008</b>
EV220A 32B	EPDM	<b>042U1037</b>
EV220A 32B	NBR	<b>042U1038</b>
EV220A 40B	EPDM	<b>042U1039</b>
EV220A 40B	NBR	<b>042U1040</b>
EV220A 50B	EPDM	<b>042U1041</b>
EV220A 50B	NBR	<b>042U1042</b>

**Spare parts kit comprises:**

- Armature assembly
- Diaphragm assembly
- Armature spring
- Diaphragm spring
- 2 O-rings

**Function, NC**

- 1. Coil
- 2. Armature spring
- 3. Armature
- 4. Pilot orifice
- 5. Diaphragm
- 6. Main orifice
- 7. Equalizing orifice



**Coil voltage disconnected**

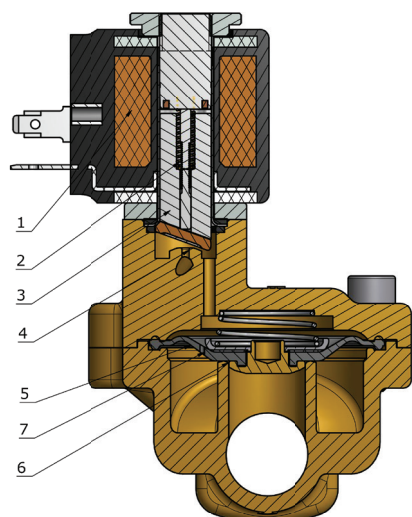
When voltage is disconnected, the armature spring (2) presses the armature (3) down against the pilot orifice (4). Pressure builds up over the diaphragm (5) via the equalizing orifice (7). The diaphragm closes the main orifice (6) as soon as the pressure over the diaphragm equals the inlet pressure. The valve stays closed for as long as voltage remains disconnected.

**Coil voltage connected (open)**

When voltage is applied to the coil (1), the pilot orifice (4) is opened. Since the pilot orifice is larger than the equalizing orifice (7), pressure over the diaphragm (5) falls and the diaphragm is lifted clear of the main orifice (6). The valve stays open for as long as the required least differential pressure is present and voltage is applied to the coil.

**Function, NO**

- 1. Coil
- 2. Armature spring
- 3. Armature
- 4. Pilot orifice
- 5. Diaphragm
- 6. Main orifice
- 7. Equalizing orifice



In principle the function involves valve positions opposite to the above for applied and disconnected voltage respectively.

**Capacity diagram**

Example for water:  
Capacity for EV220A at differential pressure of 3 bar: Approx. 7 m<sup>3</sup>/h

